A World Wide Web Server for Dental Informatics and Dental Public Health

W. Paul Lang, D.D.S., M.P.H.[1] and Kevin M. Roberts.[2]
[1]School of Dentistry and [2]College of Engineering,
University of Michigan, Ann Arbor, Michigan.

INTRODUCTION

A world wide web (WWW) server for dental informatics and dental public health was developed. The resource contains information on research and evaluation, education, and service for the two disciplines at the University of Michigan School of Dentistry. Server development and structure are described.

METHODS

The WWW server is running on a 7100/80AV PowerPC (16 MB logical RAM, 700 MB hard disk, System 7.5.1). Ford's guidelines for managing a Web site and preparing documents were used [1]. The server software is MacHTTP 2.2. HTML Editor 1.0 is used to create documents in hypertext markup language (HTML). Images are converted to GIF format with GraphicConverter 2.0.6 (US) and GIFConverter 2.3.7. Clickable image maps were developed using WebMap 1.0.1 and Mac-ImageMap 1.3. A server toolbar was created that contains a button for searching the server, a mail button, and a pointer to additional Web resources. The search engine is tr-www 1.3. An HTML featuring resource personnel is also accessible. WebStat 2.3.4 records server usage statistics.

RESULTS

The server is divided into two disciplines: Dental Informatics (DI) and Dental Public Health (DPH). Each discipline is then subdivided into research and evaluation, education, and service. The research sections contain descriptions of studies (methods, dental examination protocols, preliminary results) and manuscripts (published and unpublished) that emanate from faculty in the various disciplines.

In Dental Informatics - Education, the syllabus and all lectures for a course on dental informatics are available for fourth year dental students (D4s). This HTML is presented in an electronic book format with learning objectives and clickable outlines for each chapter (e.g., Information Management: Introduction & Theory, Information Access and Retrieval, Signal Processing, Decision-Support Tools). In another section of Dental Informatics - Education, continuing education courses for community-based dentists are displayed.

The Service portion of Dental Informatics includes AMIA Dental Informatics Working Group minutes and pointers to selected Web resources (other dental schools, medical informatics training environments, and NLM on-line information services).

In Dental Public Health - Education, there are three accessible undergraduate courses. A typical HTML for a course is constructed with a top-layer syllabus that contains pointers to grading criteria, course materials, and examples of course projects. One course, Oral Health Education, requires second year dental students (D2s) to plan a community health education presentation and 'publish' finished projects on the server. These projects are all Web-available in DPH - Service under Oral Health Information. In another course, third year (D3) students can access medical and dental histories, intraoral photographs, tooth and periodontal charts, and radiographs of patient simulations. Student can then write and print treatment plans from a server template.

The server was announced via listservers in March 1995. For the period March 7 to April 14, 1995, 2274 files were transmitted (13 MB). On average, 58 files (0.3 MB) are transmitted daily. Domain names that have accessed the server span the globe (in order of frequency: Canada, Japan, Sweden, United Kingdom, Germany, Portugal, Australia, France, Poland). About 35% of all domains are U.S. educational; about 13% are U.S. commercial. Transmission statistics indicate most users access the server steadily Monday through Friday. Peak hourly access times are 10:00 to 11:00 a.m., 1:00 to 2:00 p.m., and 4:00 to 6:00 p.m. although transmissions occur 24 hours a day, seven days a week.

DISCUSSION

The server hardware was upgraded to handle the increasing number of server sessions. Two additional servers were launched for treatment planning didactic needs in Summer 1995. MacHTTP and HTML Editor software are simple to use allowing rapid publication of documents and images. Development of images remains problematic because the department does not have access to a graphics artist. Copyright issues are being explored regarding display of others' images and previously published papers. Updating server content will be the greatest challenge, but some sections will be sustained on a yearly basis by student course work.

REFERENCES

[1]. Ford A. Spinning the web. How to provide information on the Internet. London: International Thomson Publishing, 1995. xviii+226pp.